ARE WE STILL ELIGIBLE FOR THE YELLOW JERSEY ? TAKING THE PULSE [AGAIN] OF MPO FREIGHT PLANNING

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The title is tongue-in-cheek, but the imagery (of the Tour de France) will become clear and the seriousness of the debate I hope will become equally clear.

To paraphrase a note I wrote recently to Joni Casey " if I had a dollar for every time someone calls me and says ' I've got a 50-acre parcel in Indiana, is it suitable for an intermodal yard ?', or ' how many tons of coal are in a car, and how long is a coal train , and why does it have to go by my house ? ', then I'd be a rich man. As it is, I have to content myself with knowing the answers, as in " No; 110; and, "you bought your house where it is, I didn't ".

So, Hello & Good Morning.
My name is Gerald Rawling, I am the Director of Operations Analysis at the Chicago Area Transportation Study, the MPO for six counties of northeast Illinois. I am also their *de facto* Director of Intermodal Programs and all-around shrinking violet. I was trained (if that's the right word) as a geographer, which will explain a lot of my remarks. And I was always an empiricist …… when Ed Soja invited the student body to have a graduate seminar to " sit around and feel hexagons " (and he fudged on whether or an altered state was a prerequisite – this was 1969 remember), I deferred.

Hexagons or no, for the last six years it has been my good fortune to be in the right place at the right time.

And this is a BPP production – before PowerPoint

I am not pinch-hitting for the Illinois DOT , let me put that distance between us.
I thought I might say that I am representing an *ad hoc* federation of princely states, although one of them is clearly a kingdom already, and you know I'm not quoting Shakespeare when I refer to Richard V.

I am not saying this for either comic relief or raw provocation, rather it is, firstly, to paint the mental image of a "state within a state within a state", and, secondly, to make it clear that we do not have that holistic approach to freight planning that is the hallmark of Washington state or Florida, for examples (different as they are, one from the other). We don't have the holistic approach at either the state or the "state within a state" [that's the MPO] level, and that's a double whammy. At the "state within a state within a state" level holism is not a requirement – the 5th Floor sets the agenda.

I also say it because I continue to think that there is reason for a limited number of MPOs [SCAG: MPC; PSRC; CATS; & a handful of east coats MPOs] to join together into a 21st Century reprise of the Hanseatic League …. same *raison d'etre*, same modus *operandi.*

I say Holland, you say tulips (or windmills)
I say Newcastle, you say coals
I say Chicago, you say intermodal; or you should
I say Hamburg, you think Hanseatic League

For the "state within a state" the action is unmistakably **intermodal**, specifically the rail:highway transfer, and vice versa.

You've probably seen or heard this soundbite before but it bears repeating - **the northeast Illinois region (more commonly you will see this, inaccurately, as Chicago) is the 3rd Largest Port in the World after Hong Kong and Singapore**
(measured in terms of intermodal volume) [1] . That soundbite garnered a lot of attention. The exhibit (a public information brochure) from which it is taken is in wide circulation this week. The 3rd Largest Port image is is at the root of the Hanseatic League idea.

In 1998 (we/CATS did not do a 1999 count), regional volume was 5.6 million containers/trailers ….. the AAR says that the average for such a load is 16.4 tons [2] , so we are presently doing about 92 million tons/ year in intermodal, most of it consumer durables. Put into perspective, that compares with statewide tonnage of farm produce, by the rivers, to the Gulf in the order of 30 million tons p.a., or 25 million tons p.a.
[import/export/intraport tonnages combined] at the Illinois International Port.

Intermodal analysis is a large component of the CATS' freight planning program, and I will endeavour to keep my remarks on the subject of the symposium theme, namely performance analysis.

The ancient Greeks (or maybe it was the Renaissance French mathematicians … this is something else I picked up in grad. school and my recall from that previous life is sometimes unreliable) gave us a taxonomy of statistics, as follows:

1. Nominal
2. Ordinal
3. Interval
4. Ratio,

then to satisfy my restless nature, and to upstage the Greeks and the French, I propose an obvious fifth category, **Serial**.

- Nominal
- Ordinal
- Interval
- Ratio

- ? Serial ?

Whichever they were, Greeks or French, they did not bother themselves with spatial distribution and the explanation for spatial differences; but then again, they didn't have GIS .

To get to Performance Analysis, you have to get to at least category 3.
My take on it is that, historically, freight planning has rarely got much past stage 2 (maybe in the break-out sessions I'll talk some more about why I think this is, but it has to do with staff, money, interest, etc.). It does require at least one person willing and able to progress from " have I met the basic requirements ?" to " what does it all mean ?", while realizing that, in a bureaucracy, knowing what it all means can be a decidedly mixed blessing.

In the early 1970s CATS produced a freight Atlas – a brilliant piece of work that was obsolete almost as soon as it was in print and now is a splendid museum piece. In the course of our studies in the last 6 years we have clearly progressed farther than ever before in the comprehension of <u>how</u> goods move, and now is the right time to say that it has been my great reward, personally and professionally, to work with the members of our Intermodal Advisory Task Force, especially the chair, Tom Zapler of the Union Pacific Railroad.

I propose now to examine what we/CATS have done in the way of performance analysis in the context of the aforementioned taxonomy. We will continue to call them **categories**, for clarity.

Category 1, **Nominal:** the weakest statistical level, is the basic inventory or descriptive category, but necessary to start the thought process, as in:

- there's a property A, at coordinates X&Y, owned by the R2D2 Corporation
- there's a property B, at coordinates V&W, owned by the C3PO Corporation

Attributes about what either does are on the cusp of **nominal** to **ordinal**, as in: " it produces and/or moves products/widgets i-k in volumes 1-n" . Only if R2D2 and C3PO have some common product line can the **ordinal** relationship be established.

A **Category 1a** is attainable in the form of the traditional summation exercise, as in:

- for some class (size, ownership, geography, etc.) the sum of widgets made/moved is:

$$\sum_{i\text{-}k}^{1\text{-}n} = M$$

Choice of attributes is an important consideration …. before IDOT punted on its intermodal management system (i.e. before it became a voluntary exercise and therefore no longer "met any basic requirements") it started to build a state-level data base. For truck terminals, the attribute it was recording was doors. Does doors tell you much ? Does it tell you anything you can use for a subsequent purpose ? Only if one knows the surrogate relationship to some attribute you might want to know, like trip frequency, O-D pair, volume, etc.

For northeast Illinois, we [the MPO and the Task Force] built a table of intermodal rail yards and I offer you here two exhibits.

EXHIBIT 1 is from our definitive report, Proposed Intermodal Connectors to the NHS [3]. It is **nominal**, organised more or less spatially across the region from NW to SE (there's that geographer's compulsive behaviour again).

EXHIBIT 2 is from our Working Paper 97-03 [4] and here is where we made the leap from **nominal** to **ordinal**. We positioned our railyard data into a hybrid national table, demonstrating, *inter alia*, that we have individual railyards where the process volume exceeds all but two coastal ports. That, too, got a lot of attention, as did the calculations on freight transportation employment and payroll value (also published as parts of the same Working Paper), such that at least two recalculations are underway presently by other parties.

This table is now showing its age – I have staff working on an update, but I won't go to press until I have confidence in the replacement and until it is complete.

The **ordinal** table, i.e. facility B ranks above facility C in some measure of activity (e.g. lifts per annum; TEUs;), begins to establish relationships …. we broke the mold, and probably broke some academic conventions, in our Working Paper 97-03 by deliberately mixing apples and pears.

If it mattered to us, attributes such as processing/throughput time (i.e. time to enter the gate, position the box, locate the next load, exit the gate) could be examined …. such being a typical performance measure that directly goes to the operator's bottom line.

EXHIBT 1

Operating Statistics of Major Intermodal Facilities in Northeastern Illinois

ID	Name	Operator	Type	Annual Lift Volume	% 20 ft Units	% 40 ft + Units	Days Per Week	Daily Trucks 1-WAY [1]	Daily Trucks ADT [2]	TEU (Calc.) [3]	Operational Remarks
1R	Schiller Park East	CP	COFC	83,500	35%	65%	5	169	337	137,800	
2R	Schiller Park West	CP	C/TOFC	-	-	-	-	-	-	-	Yard Now Operates as One.
3R	Bensenville	CP	C/TOFC	70,000	15%	85%	5	141	283	129,500	
4R	Global Two	UP	C/TOFC	263,000	5%	95%	7	379	759	512,900	
5R	Cicero BNSF 26th St.	BNSF	C/TOFC	420,300	5%	95%	7	606	1212	819,600	
6R	Cicero BNSF Ogden	BNSF	-	0	-	-	-	-	-	-	
7R	Cicero Ex-CCP	non RR	-	0	-	-	-	-	-	-	
8R	Global One	UP	C/TOFC	350,000	0%	100%	7	505	1010	700,000	
9R	Western Ave. BNSF	BNSF	C/TOFC	21,400	60%	40%	6	36	72	30,000	
10R	26th St UP	UP	C/TOFC	124,000	5%	95%	7	179	358	241,800	
11R	Railport	CN	C/TOFC	0	-	-	-	260 *	-	95,000 *	Lift Operations Relocated to to 92R
12R	CN Bulk Lumber	CN	Bulk	-	-	-		26 *	-	27,000 *	Volumes Below FHWA Qualifying Criteria
13R	CN Bulk Paper	CN	Bulk	-	-	-		-	-	-	
14R	Corwith	BNSF	C/TOFC	720,400	10%	90%	7	1039	2078	1,368,800	
15R	47th St. Yard	NS	C/TOFC	450,000	10%	90%	7	649	1298	855,000	
16R	63rd St. Yard	CSXI	C/TOFC	450,000	10%	90%	7	649	1298	855,000	Reverts to NS in 3 Years
17R	Forest Hill	CSXI	C/TOFC	0	-	-	-	-	-	-	Recent NS Leasing, Pending Redsign
18R	Landers	NS	C/TOFC	380,000	25%	75%	7	548	1096	665,000	35% In Gate, 31% Out Gate, 34% Hanjin Gate
19R	Bedford Park	CSXI	C/TOFC	689,700	40%	60%	7	995	1990	1,103,500	
20R	Willow Springs	BNSF	TOFC	637,400	0%	100%	7	919	1839	1,274,800	
21R	Iowa Interstate	IA	C/TOFC	17,000	30%	70%	6	29	57	28,900	Meets FHWA Secondary Criteria
22R	Yard Center	UP	C/TOFC	230,000	5%	95%	7	332	663	448,500	
23R	Moyers Intermodal	IC	C/TOFC	149,000	5%	95%	7	215	430	290,600	
24P	Federal Marine	Fed.M	Bulk	-	-	-		-	-	-	Pending Operator Relocation
25R	IMX	UP	C/TOFC	78,000	5%	95%	7	113	225	152,100	
26R	Triple Crown	TC	RR	30,000	0%	100%	7	43	87	60,000	
		NS	C/TOFC	30,000	10%	90%	7	43	87	57,000	
27R	Auto-Transload BNSF	BNSF	AT	-	-	-		100 *	-	-	
28R	Auto-Transload UP	UP	AT	-	-	-		60 *	-	-	Drop Facility
29P	Water Terminals Cluster 1	CRC	Bulk	-	-	-		1000 *	-	-	Meets FHWA Secondary Criteria
30P	Water Terminals Cluster 2	LCC	Bulk	-	-	-		500 *	-	-	Meets FHWA Secondary Criteria
31P	Water Terminals Cluster 3	KCBX	Bulk	-	-	-		100 *	-	-	Meets FHWA Secondary Criteria
91R	CSXI 59th St.	CSXI	C/TOFC	165,000	20%	80%	7	238	476	297,000	
92R	CN Gateway	CN	C/TOFC	120,000	10%	90%	7	173	346	228,000	CN Leases IC Property
			Total:	5,478,700					Total:	10,377,800	

Key

1999 V3 Operating Stats.xls

EXHIBIT 2

INTERMODAL VOLUMES for MARITIME PORTS and for RAILHEADS in northeast Illinois

[all data expressed in TEUs] **all data as TWO-WAY volumes**

Port/railhead	Annualized TEUs 1996	Annualized TEUs 1995
Chicago/ NE Illinois	*n/a*	*8,860,000*

Rank	Port	Annualized TEUs 1996	Annualized TEUs 1995	% Change 1995-1996	Monthly Surplus Import 1996	Monthly Surplus Export 1996
1	**Long Beach**	**2,325,500**	**2,116,100**	**+10**	**46,000**	
2	**Los Angeles**	**1,890,100**	**1,869,200**	**+1**	**50,000**	
3	**New York**	**1,536,900**	**1,537,600**	**0**	**12,000**	
	BNSF Corwith yard	*1,044,575*	*1,261,480*			
	CSX Bedford Park yard	*n/a*	*1,170,000*			
4	**Seattle**	**938,500**	**992,900**	**-5**		**6,300**
5	**Montreal, Can.**	**852,000**	**n/a**			
	BNSF Cicero yards (2)	*850,000*	*838,500*			
6	**Vancouver, Can.**	**817,000**	**n/a**			
7	**Oakland**	**802,000**	**919,300**	**-13**		**14,700**
8	**Charleston**	**800,600**	**736,400**	**+9**		**13,300**
	Conrail/63rd. St.	*n/a*	*760,000*			
	UP Global I	*540,000*	*700,000*			
	BNSF Willow Springs	*660,000*	*500,000*	*+20*		
	Conrail/ 47th. St.	*n/a*	*543,400*			
9	**Houston**	**537,400**	**488,400**	**+10**		**10,200**
	NS/ Landers yard	*n/a*	*514,800*			
10	**Tacoma**	**505,400**	**545,000**	**-7**	**3,700**	
11	**Miami**	**505,100**	**497,100**	**+2**		**5,800**
	UP Yard Center	*413,500*	*498,225*			
12	**Norfolk**	**465,400**	**449,900**	**+3**	**7,900**	
13	**Savanna**	**455,600**	**444,800**	**+2**		**9,500**
	UP Global II	*447,000*	*438,750*			
14	**Pt. Everglades**	**422,300**	**403,000**	**+5**		**5,800**
15	**Halifax, Can.**	**392,000**	**n/a**			
	Markham [IC+CN+WC]	*n/a*	*373,650*			
	CP [Schiller + Bensenville]	*n/a*	*320,100*			
	UP Canal Street	*306,000*	*312,000*			
	UP [ex SP] IMX yard	*154,700*	*292,500*			
16	**Baltimore**	**275,200**	**305,100**	**-10**		**1,700**
17	**Veracruz, Mex.**	**265,000**	**n/a**			
18	**Portsmouth VA**	**215,300**	**197,100**	**+9**		**15,300**
19	**Portland OR**	**209,800**	**239,200**	**-12**		**15,200**
20	**New Orleans**	**204,200**	**205,600**	**-1**		**2,400**
21	**Jacksonville**	**185,500**	**183,400**	**+1**		**5,200**
22	**Manzanillo, Mex.**	**172,000**	**n/a**			
23	**San Juan**	**154,400**	**136,400**	**+13**	**4,400**	
24	**Altamira, Mex.**	**110,000**	**n/a**			
25	**Gulfport**	**106,800**	**107,900**	**-1**	**2,100**	
26	**Wilmington DE**	**106,100**	**83,000**	**+28**	**4,900**	
27	**W Palm Beach**	**101,500**	**89,600**	**+13**	**5,500**	
Total*		**15,351,600**	**12,547,000**	**+20**	**136,500**	**105,400**

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If one wishes to know the why of the rankings, one needs to have some awareness of current conditions …. e.g. a particular property might be only operating at 50% of design capacity because it is only in its first year of operation. We subject all data to a common sense audit, aka reality check. I have seen diurnal volume charts (constructed by contracted consultants, but not contracted to CATS) in which a yard is reported to receive 3660 arriving trucks and reported to witness 1285 departures. How can this imbalance be explained ? Does the consultant not feel some obligation to at least flag the discrepancy ??? Probably not if they have not observed the activity first hand ["they also serve, who only stand and ~~wait~~ watch"]

At any of **categories 1 and 2**, the student can also secure certain statistical data, e.g. the range (of data points), the limits (upper, lower) the mean, the median, and the distribution (of points), if and when it is useful to know those data.

We have generally only flirted with **categories 3 and 4** ……. because there has not really been much purpose in seeking to define intervals (e.g. the difference between specimens i & j is the same difference as between specimens k & l) …. it is enough to know that a specimen (e.g. a railyard i) has a daily in/out volume more or less the same as railyard j and they are both several intervals greater than k & l. If and when we get to public policy analysis this will become more urgent (assuming it's public policy analysis in public view).

Exhibit 3 is where we started to break the mold a second time, in which we took two variables and sought to establish a relationship between acreage and volume processed. It was what I fondly call "cocktail napkin arithmetic" but the stunner was to estimate future volumes and turn those into a forecast of spatial requirements to 2020 …. a need for about 6 _ additional square miles by that date !!

This study was published as a Working Paper [5] **;** it became part of the regional analysis, caught the attention of the BNSF and in turn contributed to the development of an intermodal facility as part of the Joliet Arsenal reuse project.

We also have done some exploratory work on truck volumes by the simple expedient of taking two otherwise largely inert databases and mating them to determine truck VEQs by highway segment [6]. It is my wish to revisit a couple of unfinished Working Papers, now that I've got some leads to pursue, and continue the examination of trucking trends.

And this is also where we kind of stopped two years ago as (a) other regional actors caught up with us or, shall we say, looked to find their own opportunities, and (b) other CATS work efforts demanded equal time.

EXHIBIT 3

SUMMARY TABLE of INTERMODAL YARDS, acres in use, northeast Illinois, [last revised 1997; transloaders excluded, inert storage also excluded]

	YARD NAME	OWNER/ OPERATOR	SQ. MI	ACRES	% IN I/M USE	ACRES IN I/M USE	NOTES (i.e. changes since 1995
Currently Active							
1	Yard Center/ A yard [Dolton]	UPRR	0.167	107	100%	107	
2	Markham	CN/IC	0.854	546	60%	328	incl. IC, WC,SP as users
3	Schiller Park	CPRS	0.091	59	100%	59	
4	Canal Street	UPRR	0.033	21	100%	21	
5	IMX	UPRR (SP lessee)	0.177	114	100%	114	
6	Bensenville	CPRS (also for I&MRR)	0.67	429	35%	150	
7	Global I	UPRR	0.131	84	100%	84	
8	Western Ave	BNSF/COSCO	0.092	59	100%	59	
9	26th Street	private	0.027	18	0%	0	storage
10	Forest Hill	CSX	0.061	39	0%	0	storage
11	Cicero	BNSF	0.416	266	66%	176	
12	Willow Springs	BNSF	0.549	352	90%	316	
13	Bedford Park	CSX	0.3	193	100%	193	expansion planned
14	Corwith	BNSF	0.48	307	75%	230	expansion planned
15	Railport	CNIC/BNSF lease	0.08	51	0%	0	storage
16	Elsdon (lumber)	CN/IC	0.182	116	50%	58	other 50% vacant
17	47th/51st/55th Strts.	NS (ex-Conrail)	0.156	100	100%	100	
18	-ditto-	- ditto -	0.078	50	100%	50	
19	63rd Street	CSX (ex-Conrail)	0.155	100	100%	100	
20	Global II (I/M only)	UPRR	0.246	158	100%	158	
21	Landers	NS	0.192	123	100%	123	
22	Calumet	NS	0.226	145	40%	58	in Triple Crown use
	Calumet	NS	0.226	145	10%	15	
23	Burr Oak	IAIS	0.139	89	50%	44	
24	59th Street	CSX	0.205	132	100%	132	entering service
					TOTAL	2,675	

Acreages digitized from aerials

d:acreages2.wk

If I had the time, the budget, the staff, I could be a rich man twice over, because we get frequent calls (often from the media) asking such questions as: " are there more trucks on the road now than there were 10 years ago, and are they bigger ? "
Now those are good questions, and I don't have a definitive answer, though I feel that I should. And the answer is the **Category 5** that I proposed, the **Serial** category, because I believe this is at the heart of the matter for future freight planning.

Last week I answered an FHWA survey.

In a discreet response to a crucial Q15, "Is there support for the MPO for addressing freight transportation needs ?" I wrote this:

> ……..the public transportation providers in the region expend a sum in the order of $ 1 million/year for routine market research (e.g. standing on the station platform and asking " how did you get here ? "), from which it is possible to determine trends and, if called for, to progress to public policy analysis based on those trends.
>
> Similar accomplishments for freight would probably require a funding level closer to the $ 1 million than to the $ 175,000 that is the current average annual budget for the MPO …….

I was recently in Kansas City for the ribbon-cutting of the Sheffield flyover …. not quite four years from consultant report through engineering and funding to project completion. By contrast, we, in northeast Illinois, have the St. Charles Air Line project … first proposed in 1993 and going nowhere; that's because it basically has no intrinsic operational business value (not that that ever deterred the 5th Floor). And if it were ever honestly costed out it would make the Sheffield flyover look like pocket change.

We { CATS } have not published any new research in almost two years, not counting the rework of the Connectors report into a Volume 3 (replacing an earlier Volume 2). But I am lately concluding that freight planning in northeast Illinois – and here's the point of the imagery in the title - is a lot like the Tour de France, i.e. it's not always the same race leader, and maybe for now our role in it is to drop back into the pack for a while. You can wear the yellow jersey without being in front; the problem today, as I see it, is that it's not clear who is in front or who is riding for which team.
As an aside, Paul Nowicki probably owns the spotted shirt (for hill climbs) *ad perpetuam*.

The Task Force has not met for several months but I have made a dot point list of some of what is going on presently so you can buttonhole me for more details if you wish:

- the FHWA's Intermodal Connectors Assessment is in final edit [Harry Caldwell, your patience must have its reward in the afterlife]

- CDOT has funded some complementary work on trip rates at intermodal yards and some work on levels of service at truck-intensive intersections. CATS is doing the QC (the common sense audit)

- the AAR has funded a 3-part study of the Chicago Gateway; at the same time the roads in the Gateway have instituted a major institutional coordination project. Some updates/results are being released, such as:

  - in the (average) time (77 hours) it takes to run a manifest train from Cicero yard to Fort Wayne an intermodal hot-shot will have been to Oakland and be half way back again – not good

  - (resulting from operational improvements) the daily number of crews lost to the Hours of Service Law has been cut from 60 to 30 – very good

- Northwestern University's Departments of Civil Engineering and Infrastructure Research are doing some early research into intermodal truck behaviour and network influence

- The American Institute of Architects is flirting with the notion of a new, improved version of our brochure – the AIA Chicago chapter subscribes to my long-held belief that the body politic labors under the impression that goods can be put on shelves by some kind of divine intervention, in the hours of darkness, and that somehow does not need to involve real trucks and real trains …. virtual delivery, just what we all need !! That will solve a lot of congestion problems

- The MPC { Metropolitan Planning Council } put on one splendid freight mobility conference and several parties are considering sponsoring or co-sponsoring a follow-up

- the Union Pacific (and some of my best friends are from the Union Pacific) continues to search for a site for Global III

- and we can still boast the only phantom segment on the NHS – the Central-Narragansett corridor

So that's a sampling ……. in the immortal words of Simon & Garfunkel, "it's all happening at the zoo".
That's 8 pages in 10 minutes; 20 pages would have been *de trop*. I have put out a set of CATS' freight-related products and will mail you any you wish to order.

And no presentation of mine is complete without at least one photograph ….. this time a S.P.U.D. at Pulaski on the Stevenson [I-55] Expressway, and this is clearly truck-friendly. There is another one under construction at Damen. If I were in the trucking business I think I'd write a complimentary letter to the District Engineer, copy to the two major dailies.

~ ~

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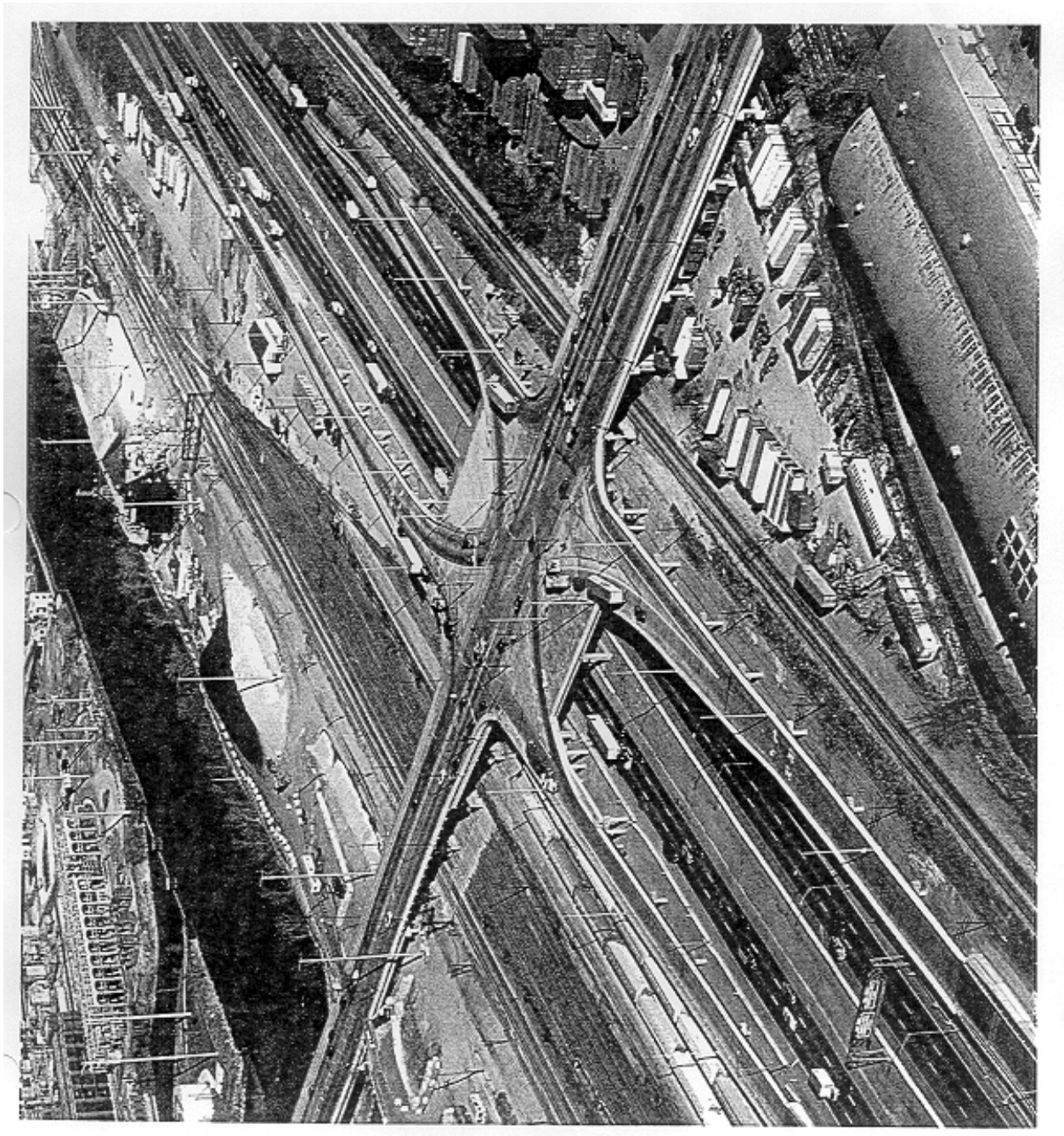

S.P.U.D.
[Single Point Urban Diamond]